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COALITION COMMAND AND CONTROL IN THE NETWORKED ERA

Battle-space Awareness and the Awareness-Order-Action Cycle

Cognitive and Social Issues, Organizational Issues, C2 Metrics and Assessment

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An argument has been presented (Hone, Whitworth, Martin; 2006) that Awareness is best considered as Battle-space Awareness, and as a component of a larger Awareness-Order-Action (AOA) cycle. As referenced, this was in the context of the influences of culture and doctrine on multi-force and multi-national operations. At a time when a number of “Cycle” models (e.g. OODA, ODOA, OPAM, RUDE) are in use – all of which are probably best related to specific aspects of combat – we believe that not enough attention is being paid to fostering a general awareness of the battle-space, or to a generic approach to integrating such awareness into a generic model of the combat process (particularly from the viewpoint of ground and littoral combat. Developed from the 3-Q model of awareness (11th ICCRTS, 2006), the AOA Cycle is offered as a means of exploring the way in which information flows, as well as culture and doctrine, can influence combat events. This requires a new approach to the assessment of awareness, and in particular to the separate awareness of “Blue” versus “Red” forces; such an approach can be enabled by the 3-Q model, as will be demonstrated.

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The essence of the AOA cycle is that any knowledge of the battle-space will have an influence on the orders given by a force commander (or indeed at lower command levels), but this will not be the sole influence. Any commander will bear in mind those orders, instructions and intent passed down by his higher authority – whether that be military or political – and will also be influenced by the culture of his service, and particular arm of service, by his service doctrine, and by his national culture. In the present world climate of multi-force, multi-national (or coalition) operations, the final orders and intent passed on by our hypothetical commander will be interpreted by subordinates who will have their own service doctrine and national culture, and must be influenced by them to some degree.

As the force starts to put the commander’s intent and orders into effect, they will inevitably influence and change the overall battle-space – affecting both command and subordinate awareness – and this may require that the orders be amended. It is customary to refer to “Agile Planning” as if this was simply the ability to modify the Orders rapidly. True agility must reflect the changing perceptions of the battle-space, and any formal study of this topic requires a suitable model of awareness.

The 3-Q model has these three questions as its base:

- Q1. Who is where?
- Q2. What are they doing?
- Q3. What will they do?

and these are considered adequate for general reasoning about awareness. If they are represented as three overlapping (or adjacent) bubbles, then the question within each bubble can be answered from more than one viewpoint and to several degrees of completeness.

This can be illustrated by reference to Q1, considered here to be related to commanding a company. Any commander should have an (almost) absolute knowledge of where his own forces are disposed. Such knowledge may not be total, in that sub-units may be moving into their desired position (considered by Q2), but answers to Q1 should have a very high degree of confidence. That same commander may have minimal information on the opposing force, but this is likely to change quite rapidly as both his forward units and other information assets come into play. Any such information must inevitably be processed by all who handle it in the light of their own culture and doctrine. This can be seen in the German reaction to news of the landings on beaches in Normandy in June 1944, and the effect it had on the speed of their response.

In the same fashion, all orders passed down a command hierarchy will be interpreted by individuals with particular personal concepts of doctrine and influenced by their own culture. If – as is highly probable – this leads to their orders being seen in slightly different ways, and followed in slightly different ways, this must affect some of the answers to Q3, and may mean that the opposing forces react to a situation that was not exactly as our hypothetical commander expected it to be.

We argue that the essential awareness of the battle-space must be considered as part of a larger cycle, where any action will have the potential to influence the rest of the cycle, and where doctrinal and cultural influences can bear on more than one point in the cycle. Further, the “Blue Force Tracking” approach, will only give a commander a maximum 50% of the answers to Q1, and that a view of Q2 and Q3 will be derived from a less than complete set of data, in the manner described by Klein as Naturalistic Decision Making (e.g.: Klein 1999). If a commander will make (and will have to make) decisions on less than total knowledge, it seems appropriate to look at the cycle of information and actions, in order to assess both the points at which doctrinal and cultural influences may have an effect, and to assess what information that commander really needs so that desired objectives will be attained. Some approaches to the quantification of the 3-Q Awareness model have already been reported, but it is intended to consolidate and discuss this further.